

CLAIMS

What is claimed is:

1. In a system that delivers a main pulse to a load, a circuit for shortening a rise time of the main pulse delivered to the load, the circuit comprising:

a pulse transformer having a first winding that is connected to a load and a second winding that is connected with a pulse generator such that an auxiliary pulse generated by the pulse generator is delivered through the pulse transformer to at least partially charge a capacitance associated with the load; and

a diode connected between the load and the first winding of the pulse transformer, wherein the diode isolates the pulse transformer from the load when the main pulse is applied to the load and wherein the diode passes the auxiliary pulse to the load.

2. A circuit as in claim 1, wherein the first winding has a number of turns that is greater than a number of turns in the second winding.

3. A circuit as in claim 1, further comprising a main pulse transformer that is connected to the load, the main pulse transformer having a first winding and a second winding.

4. A circuit as in claim 3, further comprising a main pulse generator that generates the main pulse delivered to the load through the main pulse transformer.

5. A circuit as in claim 4, wherein the auxiliary pulse has a duration sufficient to at least partially charge the capacitance associated with the load and shorten a rise time of the main pulse.

6. A circuit as in claim 5, wherein the auxiliary pulse is delivered before the main pulse.

7. A circuit as in claim 5, wherein the main pulse has a duration that is longer than the duration of the auxiliary pulse and wherein the auxiliary pulse overlaps a first portion of the main pulse.

8. A circuit as in claim 3, wherein the load is greater than 1500 ohms.

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9. In a system that delivers a main pulse to a load, a circuit for shortening a rise time of the main pulse delivered to the load, the circuit comprising:

a main pulse transformer coupled to a load, the main pulse transformer configured to deliver a main pulse to the load, wherein a rise time of the main pulse is related to a capacitance associated with the load;

an auxiliary pulse transformer coupled to the load, wherein the auxiliary pulse transformer delivers an auxiliary pulse to charge the capacitance associated with the load; and

a diode connected between the auxiliary pulse transformer and the main transformer to isolate the auxiliary pulse transformer from the main pulse.

10. A circuit as in claim 9, further comprising a main pulse generator that generates the main pulse delivered to the load through the main pulse transformer.

11. A circuit as in claim 9, further comprising an auxiliary pulse generator that generates the auxiliary pulse delivered through the auxiliary pulse transformer.

12. A circuit as in claim 9, the main pulse having a duration that is longer than the duration of the auxiliary pulse.

13. A circuit as in claim 12, the auxiliary pulse being delivered through the auxiliary pulse transformer before the main pulse is delivered to the load through the main pulse transformer.

14. A circuit as in claim 12, the auxiliary pulse being delivered through the auxiliary pulse transformer such that the auxiliary pulse overlaps a first portion of the main pulse.

15. A circuit as in claim 12, the auxiliary pulse being delivered through the auxiliary pulse transformer to charge the capacitance to increase a rise time of the main pulse across the load.

16. A circuit as in claim 15, the auxiliary pulse being configured to reduce ringing of the main pulse on the load.

17. A circuit as in claim 15, further comprising means for adjusting the auxiliary pulse to minimize a rise time of the main pulse.

18. A method for decreasing a rise time of a main pulse delivered to a load through a main pulse transformer, the method comprising:

applying an auxiliary pulse to a load through an auxiliary pulse transformer such that the auxiliary pulse charges a stray capacitance associated with the load;

applying a main pulse to the load through a main pulse transformer, the main pulse having a rise time that is related to the stray capacitance, wherein the second pulse reduces the rise time; and

terminating the auxiliary pulse after the stray capacitance associated with the load is charged.

19. A method as defined in claim 18, wherein applying an auxiliary pulse further comprises applying the auxiliary pulse such that the auxiliary pulse overlaps with a beginning portion of the main pulse.

20. A method as defined in claim 18, wherein applying an auxiliary pulse further comprises applying the auxiliary pulse such that the auxiliary pulse does not overlap with the main pulse.

21. A method as defined in claim 18, wherein applying an auxiliary pulse further comprises isolating the auxiliary pulse transformer from the main pulse.

22. A method as defined in claim 18, further comprising adjusting at least one of a timing, an amplitude, and a duration of the auxiliary pulse to reduce a rise time of the main pulse.

23. A method as defined in claim 18, further comprising adjusting at least one of a timing, an amplitude, and a duration of the auxiliary pulse to reduce a ringing of the main pulse on the load.

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